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The book consists of abstracts of plenary lectures, oral reports and posters presented at the XXXIV International Conference on Interaction of Intense Energy Fluxes with Matter (1–6 March 2019, Elbrus, Kabardino-Balkaria, Russia). The presentations deal with the contemporary investigations in the field of physics of extreme states of matter. The conference topics are as follows: interaction of intense laser, x-ray and microwave radiation, powerful ion and electron beams with matter; techniques of intense energy fluxes generation; experimental methods of diagnostics of ultrafast processes; shock waves, detonation and combustion physics; equations of state and constitutive equations for matter at high pressures and temperatures; methods of mathematical modeling in physics of extreme states of matter; high-energy astrophysics; low-temperature plasma physics; physical issues of power engineering and technology aspects.

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Crystal nucleation and the temperature dependencies of the rate characteristics of crystallization

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The kinetics of the crystallization of a supercooled liquid is characterized by such the characteristics as the growth rate, the waiting time (lag-time) of nucleation, the attachment rate, the growth rate and the rate of crystallization (the last quantity is usually determined per unit volume of the system). The temperature dependencies of each of these quantities for different systems can vary significantly. Depending on the concrete system specifics, the difference can be several orders of magnitude. Nevertheless, there are common physical principles that indicate on the possibility of a unified description of the temperature dependencies of these rate characteristics. This report will present some existed approaches.

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